UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE	READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER: NPRDC-SR-79-5	2. GOVT ACCESSION NO: AD-A083928
	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle): THE INSTRUCTIONAL QUALITY INVENTORY IV: JOB PERFORMANCE AID.	5. TYPE OF REPORT & PERIOD COVERED: Final rept.
	6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s): John A. Ellis, Wallace H. Wulfeck, II	8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS: Navy Personnel Research and Development Center, San Diego, California 92152	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS: 62175N, PN.05
11. CONTROLLING OFFICE NAME AND ADDRESS: Navy Personnel Research and Development Center, San Diego, California 92152	12. REPORT DATE: November 1978
	13. NUMBER OF PAGES: 22
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)	15. SECURITY CLASS. (of this report): UNCLASSIFIED
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

LEVEL II

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

62175N PN

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

DTIC ELECTE MAY 6 1980 S D C

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Instructional Systems Development
Instructional Design
Quality Control of Instruction
Instructional Diagnosis
Instructional Quality Inventory (IQI)
Instructional Strategies Diagnostic Profile (ISDP)

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Instructional System Development (ISD), a systematic method for developing military instruction, is used by the military services to develop or revise a large portion of the training courses. The Instructional Quality Inventory (IQI) was developed to provide quality control/evaluation procedures for ISD. This report is a job performance aid for IQI users.

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

390 775

AD A083928

DDC FILE COPY

NAVY PERSONNEL RESEARCH AND DEVELOPMENT CENTER SAN DIEGO CALIFORNIA 92152

NPRDC SR 79-5 NOVEMBER 1978

THE INSTRUCTIONAL QUALITY INVENTORY IV: JOB PERFORMANCE AID

Special Report 79-5

November 1978

12

THE INSTRUCTIONAL QUALITY INVENTORY: IV. JOB PERFORMANCE AID

John A. Ellis
Wallace H. Wulfeck, II

Reviewed by
John D. Ford, Jr.

Approved by
James J. Regan
Technical Director

Navy Personnel Research and Development Center
San Diego, California 92152

FOREWORD

The Instructional Quality Inventory (IQI) was developed in support of Navy Decision Coordinating Paper, Education and Training Development (NDCP-Z0108-PN), under subproject P.30A, Adaptive Experimental Approach to Instructional Design, and the sponsorship of the Director of Naval Education and Training (OP-99). The overall objective of the subproject is to develop an empirically-based instructional design support system to aid developers in deciding on instructional alternatives based on cost/benefits and specified resource limitations. The purpose of the IQI, which was originally called the Instructional Strategy Diagnostic Profile (ISDP), is to provide quality control and/or evaluation procedures for instructional development.

A number of reports have been published on the IQI/ISDP. The first provided an interim training manual for the ISDP (NPRDC Special Report 77-14), and the next three addressed its empirical and workshop evaluations (NPRDC Technical Reports 77-25 and 77-43 and Special Report 78-17). As a result of these evaluations, the ISDP was extensively revised and retitled as the IQI. These revisions were included in NPRDC Technical Note 78-5, which provided an interim training manual for the IQI.

This report is the fourth in a series of four on IQI procedures. It provides a Job Performance Aid for the IQI process, including a list of all the IQI procedures. The other three reports are:

1. The Instructional Quality Inventory: Volume I, Introduction and Overview (NPRDC Special Report 79-3).

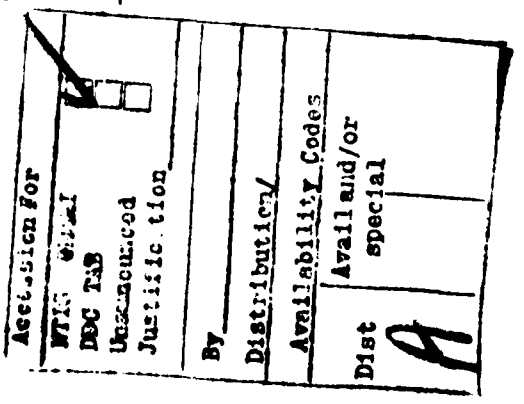
2. An IQI User's Manual, which will include a complete description of all IQI procedures, and provide examples of their use (to be published in early 1979).

3. An IQI Training Workbook, which will provide additional examples, and practice on the IQI procedures (to be published in early 1979).

When these four reports have been published, previous training manuals (NPRDC Special Report 77-14 and Technical Note 78-5) will have been superseded.

The IQI is intended for use by the Chief of Naval Education and Training; the Chief of Naval Technical Training; the Chief of Naval Education and Training Support (specifically, the Instructional Program Development Centers); the Commander Training Command, Atlantic; the Commander Training Command, Pacific; and all other Navy activities concerned with the development, revision, or acquisition of instructional programs. Prospective users of the IQI are invited to contact this command for assistance in implementation.

DONALD F. PARKER
Commanding Officer



CONTENTS

OBJECTIVE ADEQUACY

INSTRUCTIONAL QUALITY INVENTORY

CARD 1

STEP 1: ENTER the COURSE TITLE and OBJECTIVE NUMBER at the top of the form.

STEP 2: Determine whether or not the OBJECTIVE is CORRECTLY STATED.

2a: Are the CONDITIONS under which student performance is expected specified?

ENVIRONMENT: PHYSICAL (weather, time of day, lighting, etc.)
SOCIAL (isolation, individual, team, audience, etc.)
PSYCHOLOGICAL (fatigue, stress, relaxed, etc.)

INFORMATION: GIVEN INFORMATION (scenario, formula, values, etc.)
CUES (signals for starting or stopping)
SPECIAL INSTRUCTIONS

RESOURCES: JOB AIDS (cards, charts, graphs, checklists, etc.)
EQUIPMENT, TOOLS
TECHNICAL MANUALS

2b: Are the STANDARDS which the student performance must meet specified?

PERFORMANCE: COMPLETENESS (how much of the task must be performed)
ACCURACY (how well must each task be performed)
TIME LIMIT (how much time is allowed)
RATE (how fast must task be done)

PRODUCT: COMPLETENESS (what must finished product contain)
QUALITY (what objective standard must product meet)
JUDGEMENT (what subjective opinions must product satisfy)

2c: Is the ACTION the student must perform specified?

Is an action verb used to specify what the student must do?

Is only one action stated in the objective?

STEP 3: Determine whether or not the OBJECTIVE is CLASSIFIABLE? Does the OBJECTIVE fit in one and only one cell of the table below?

	FACT RECALL OR RECOGNIZE NAMES, PARTS, DATES, PLACES, ETC.	CONCEPT REMEMBER CHARACTERISTICS, OR CLASSIFY OBJECTS, EVENTS OR IDEAS ACCORDING TO CHARACTERISTICS	PROCEDURE SEQUENCE OF STEPS REMEMBERED OR USED IN A SINGLE SITUATION OR ON A SINGLE PIECE OF EQUIPMENT	RULE REMEMBER OR USE A SEQUENCE OF STEPS WHICH APPLY ACROSS SITUATIONS OR ACROSS EQUIPMENTS	PRINCIPLE REMEMBER, OR INTERPRET OR PREDICT, WHY OR HOW THINGS HAPPEN, OR CAUSE-EFFECT RELATIONSHIPS
REMEMBER - RECALL OR RECOGNIZE FACTS, CONCEPT DEFINITIONS, STEPS OF PROCEDURES OR RULES, STATEMENTS OF PRINCIPLE					
USE-UNAIDED - TASKS WHICH REQUIRE CLASSIFYING, PERFORMING A PROCEDURE, USING A RULE, EXPLAINING OR PREDICTING WITH NO AIDS EXCEPT MEMORY.					
USE-AIDED - SAME AS USE-UNAIDED, EXCEPT JOB AIDS ARE AVAILABLE.					

(Continued on other side)

TEST CONSISTENCY

INSTRUCTIONAL QUALITY INVENTORY

CARD 2

STEP 1: ENTER the COURSE TITLE and OBJECTIVE NUMBER at the top of the form.

STEP 2: ENTER the TEST ITEM NUMBERS for the items associated with this objective on the form.

STEP 3: DETERMINE whether or not the CONDITIONS in each item, or the CONDITIONS under which the items are administered, match the conditions in the objective.

STEP 4: DETERMINE whether or not the STANDARDS in each item, or the STANDARDS for scoring each item, match the standards in the objective.

STEP 5: DETERMINE whether or not the ACTIONS in each item match the action of the objective.

STEP 5a: Determine the TASK LEVEL and CONTENT TYPE of each test item.

STEP 5b: Determine whether these match the TASK LEVEL and CONTENT TYPE of the objective.

STEP 6: DETERMINE whether or not each item is typical of the job to be performed after training, or is a necessary qualification for later training.

STEP 7: DETERMINE whether or not the FORMAT of each item is APPROPRIATE for the TASK LEVEL and CONTENT TYPE. Use the table below:

TASK LEVEL	*CONTENT TYPE* FACT	CONCEPT	PROCEDURE	RULE	PRINCIPLE
REMEMBER	*for RECOGNITION:* matching true-false multiple choice *for RECALL:* short answer fill-in listing	short answer fill-in listing	short answer fill-in listing	short answer fill-in listing	short answer fill-in listing
USE-UNAIDED		performance matching true-false multiple choice short answer fill-in	performance true-false multiple choice short answer fill-in	performance true-false multiple choice short answer fill-in	performance true-false multiple choice short answer fill-in
USE-AIDED		performance matching true-false multiple choice short answer fill-in	performance true-false multiple choice short answer fill-in	performance true-false multiple choice short answer fill-in	performance true-false multiple choice short answer fill-in

TEST ADEQUACY

CARD 3

STEP 1: DETERMINE whether or not each item is CLEAR. *Instructions for completing the item must specify what response the student is expected to make.*

STEP 2: DETERMINE whether or not each item is UNAMBIGUOUS. *Each item must have one and only one correct response, and the item must be interpretable in only one way. That is, items must not be confusing.*

STEP 3: DETERMINE whether or not each item is WELL CONSTRUCTED. *Different criteria apply to different item formats:*

TRUE-FALSE items:	*An item should include only one statement to be judged true or false.* *Negative statements should be avoided.* *Don't use words like "never," "always," etc.* *Item statements should be short.*
MULTIPLE CHOICE items:	*All alternatives should be plausible.* *Negatives in the item stem should be highlighted.* *Repetitive phrases should be placed in the stem, not in the alternatives.* *Alternatives like "all of the above," "A and B only," should be avoided.*
MATCHING items:	*Instructions should explain the contents of each column, and explain the basis for matching.* *Instructions should specify how many times each answer may be used.* *The choice column should include extra answers unless answers may be used more than once.*
FILL-IN items:	*The blank should be at or near the end of the sentence.* *One and only one phrase should correctly complete the item.* *Multiple blanks should be avoided.* *Blanks should require key words.*
SHORT ANSWER items:	*The required answer should be kept short.* *The directions to the student should specify how the item will be scored.* *The scoring key should identify allowable synonyms or alternatives.*
LISTING items:	*The directions should specify the number of things to be listed (if appropriate for the objective, and if the number of things is not a hint).* *The directions should specify whether or not order is important. If so, the scoring key should score sequence separately.* *The scoring key should identify allowable synonyms or alternatives, and should specify different weights if appropriate.*
PERFORMANCE items:	*The directions should clearly explain what the student is to do and how the item will be scored.* *The scoring key must specify all criteria the performance must meet, such as completeness, accuracy, quality, time limit, rate, etc. If steps in the performance are scored, a checklist should be provided.*

STEP 4: DETERMINE whether or not each item is FREE of HINTS. *An item should not give away the answer to itself or to any other item on the test. The grammar of multiple-choice and fill-in items should not give hints to answers.*

STEP 5: DETERMINE whether or not the items allow for COMMON ERRORS to be made.

STEP 6: For USE-level objectives, DETERMINE whether or not there are ENOUGH ITEMS to test the objective adequately, and to reflect the range of performance required on the job.

PRESENTATION CONSISTENCY

INSTRUCTIONAL QUALITY INVENTORY

CARD 4

STEP 1: ENTER the COURSE TITLE and OBJECTIVE NUMBER at the top of the form.

STEP 2: LOCATE the section of the presentation related to this objective.

STEP 3: DETERMINE if the required PRESENTATION COMPONENTS are present for the task level of the objective. (Use the table below).

	REQUIRED PRESENTATION COMPONENTS			
TASK LEVEL	STATEMENT	PRACTICE REMEMBERING	EXAMPLES	PRACTICE USING
REMEMBER	*required*	*required*	*not required*	*not required*
USE-UNAIDED	*required unless the associated REMEMBER objective was taught recently*		*required*	*required*
USE-AIDED	*the aid replaces statement*	*not required*	*required with aid*	*required with aid*

STEP 4: DETERMINE whether or not each required PRESENTATION COMPONENT is COMPLETE for the content type of the objective (Use the table below). Examples and practice items must also match the task level of the objective.

PRESENTATION COMPONENT	CONTENT TYPE OF THE OBJECTIVE				
	FACT	CONCEPT	PROCEDURE	RULE	PRINCIPLE
STATEMENT	complete fact presented	all critical characteristics and their combination are given	all steps are given in the correct order	all steps and branching decisions are given in the correct order	all causes, effects, and relationships are given
PRACTICE REMEMBERING	recall or recognition required	recall of concept definition required	recall of all steps in correct order required	recall of all steps and branch decisions in correct order required	recall of all causes, effects, relationships required
	For all content types: Practice Remembering items must be the same as the test item. They must be the same format as the test item. All practice items must include feedback.				
EXAMPLES	*not applicable*	examples show all critical characteristics required for classification, non-examples show absence of critical characteristics	application of the procedure must be shown and steps must be shown in the correct order	application of each step or branching decision must be shown in the correct order	interpretation or prediction based on causes, effects, and relationships must be shown
PRACTICE USING	*not applicable*	classification of both examples and non-examples is required	all steps must be performed in the correct order	all steps and branching decisions must be performed in the correct order	explanation or prediction based on the principle is required

For all content types: Practice Using items must reflect what is to be done on the job or in later training.
The task/content level, conditions, and standards must match the test item and objective.
The practice item format must be the same as the test item format.
All practice items must include feedback.

For CONCEPTS, RULES, and PRINCIPLES: Some practice items should be different than either the test items or the examples. *(Common error items might be the same.)*

PRESENTATION ADEQUACY

INSTRUCTIONAL QUALITY INVENTORY

CARD 5

STEP 1: DETERMINE whether or not each required PRESENTATION COMPONENT meets the general ADEQUACY criteria below.

SEPARATED: Statements, Examples, or Practice must be SEPARATED from the rest of the instruction. *There are different ways components may be separated:*

a. Set off the component with a box.
b. Use a different color or type face, or underline.
c. Place on a separate page, or in a special place on the page.
d. For audio, movies, or lectures, pause before introducing the component.

IDENTIFIED: Statements, Examples, and Practice must be IDENTIFIED so the student knows what they are, and can locate them. *Labels can be used to identify different components:*

Definition of ...	*Example*	*Practice*
Procedure for ...	*Demonstration*	*Test Yourself*
Key Point:		

CLEARLY STATED: Statements, Examples, and Practice must be CLEARLY STATED so the student can understand them. *The following criteria should be used:*

a. The READING LEVEL must be appropriate for the students.
b. The presentation should not be confusing, vague, or too wordy.
c. All essential information should be present; the student should not be referred to other places to obtain information.
d. All presentations should be PERFORMANCE-ORIENTED, not topic-oriented.

STEP 2: DETERMINE whether or not each required PRESENTATION COMPONENT meets the specific ADEQUACY criteria below:

STATEMENTS: HELP: In addition to the statement, the instruction should include something to help the student better understand and remember the statement. *Methods of providing help include:*

a. Giving a MNEMONIC (memory trick) or other memory aid.
b. Representing the statement with pictures, symbols, flowcharts, etc.
c. Explaining how the statement relates to something the student already knows, how it fits in the course, why it is important.
d. Giving more explanation about what the statement means.

CLEARLY STATED: In addition to the criteria above, statements for different content types must meet the criteria below:

CONCEPTS: Give a decision rule or search strategy for classification.
PROCEDURES: Each step should have only one action.
RULES: If a formula is used, symbols must be defined.

(Continued on other side)

COURSE TITLE *OBJECTIVE #*

OBJECTIVE ADEQUACY

OBJECTIVE CORRECTLY STATED?

REVISIONS

CONDITIONS *y* *n*

STANDARDS *y* *n*

ACTION *y* *n*

OBJECTIVE CLASSIFIABLE? (IN ONE AND ONLY ONE WAY) *y* *n*

(circle the classification) *REVISIONS*

	FACT
REMEMBER	
	CONCEPT
USE-UNAIDED	
	PROCEDURE
USE-AIDED	
	RULE
	PRINCIPLE

OBJECTIVE APPROPRIATE? (FOR JOB OR LATER TRAINING)

REVISIONS

CONDITIONS APPROPRIATE? *y* *n*

STANDARDS APPROPRIATE? *y* *n*

ACTION - TASK LEVEL APPROPRIATE? *y* *n*

- CONTENT TYPE APPROPRIATE? *y* *n*

if REMEMBER, is there a later USE objective? *y* *n*

if USE-UNAIDED, is there a previous REMEMBER objective? *y* *n*

if USE-AIDED, is the aid adequate, or are other objectives on the aid included? *y* *n*

COURSE TITLE *OBJECTIVE #*

TEST CONSISTENCY AND ADEQUACY

CONSISTENCY	*test item #___*	*revisions*	*test item #___*	*revisions*	*test item #___*	*revisions*
CONDITIONS SAME (as objective)?	*y n*		*y n*		*y n*	
STANDARDS SAME?	*y n*		*y n*		*y n*	
ACTION (TASK/CONTENT) SAME?	*y n*		*y n*		*y n*	
TYPICAL OF JOB?	*y n*		*y n*		*y n*	
FORMAT APPROPRIATE?	*y n*		*y n*		*y n*	
ADEQUACY						
CLEAR?	*y n*		*y n*		*y n*	
UNAMBIGUOUS?	*y n*		*y n*		*y n*	
WELL-CONSTRUCTED?	*y n*		*y n*		*y n*	
FREE of HINTS?	*y n*		*y n*		*y n*	

REVISIONS

Are COMMON ERRORS tested? *y n*

Are there ENOUGH ITEMS? *y n*

COURSE TITLE *OBJECTIVE #*

PRESENTATION CONSISTENCY AND ADEQUACY

CONSISTENCY

REVISIONS

Required PRESENTATION COMPONENTS Present? *y* *n*

Required PRESENTATION COMPONENTS Complete? *y* *n*

ADEQUACY

STATEMENT ADEQUATE?

Separate?	*y*	*n*
Identified?	*y*	*n*
Clear?	*y*	*n*
Help?	*y*	*n*

EXAMPLES ADEQUATE?

Separate?	*y*	*n*
Identified?	*y*	*n*
Clear?	*y*	*n*
Help?	*y*	*n*
Matching (concepts only)?	*y*	*n*
Easy to hard?	*y*	*n*
Enough?	*y*	*n*
Common errors?	*y*	*n*

PRACTICE ADEQUATE?

Separate?	*y*	*n*
Identified?	*y*	*n*
Clear?	*y*	*n*
Free of hints?	*y*	*n*
Easy to hard?	*y*	*n*
Common errors?	*y*	*n*
Enough?	*y*	*n*
Feedback Separate?	*y*	*n*
Feedback Identified?	*y*	*n*
Feedback Help?	*y*	*n*

REFERENCES

Courseware, Inc., Author Training Course: Identifying Technically Correct Test Items. San Diego: Courseware, Inc., April 1978.

Ellis, J. A., Wulfeck, W. H. II, Merrill, M. D., Richards, R. E., Schmidt, R. V., & Wood, N. D. Interim Training Manual for the Instructional Quality Inventory (NPRDC Tech. Note 78-5). San Diego: Navy Personnel Research and Development Center, February 1978.

Kern, R. P., Sticht, T. G., Welty, D., & Hauke, R. N. Guidebook for the development of Army training literature (ARI Special Pub. P-75-3). Arlington, VA: U. S. Army Research Institute for the Behavioral and Social Sciences, November 1976.

Merrill, M. D., Richards, R. E., Schmidt, R. V., & Wood, N. D. Interim training manual for the Instructional Strategy Diagnostic Profile (NPRDC Special Rep. 77-14). San Diego: Navy Personnel Research and Development Center, September 1977.

Merrill, M. D., Wood, N. D., Baker, M., Ellis, J. A., & Wulfeck, W. H., II. Empirical validation of selected Instructional Strategy Diagnostic Profile prescriptions (NPRDC Tech. Rep. 77-43). San Diego: Navy Personnel Research and Development Center, September 1977. (AD-A045 309)

Merrill, M. D., & Wood, N. D. Validation of the Instructional Strategy Diagnostic Profile: Empirical studies (NPRDC Tech. Rep. 77-25). San Diego: Navy Personnel Research and Development Center, April 1977. (AD-A042 334)

Wood, N. D., Ellis, J. A., & Wulfeck, W. H., II. Instructional Strategy Diagnostic Profile training manual: Workshop evaluation (NPRDC Special Rep. 78-17). San Diego: Navy Personnel Research and Development Center, September 1978.

Wulfeck, W. H., II, Ellis, J. A., Richards, R. E., Wood, N. D., & Merrill, M. D. The Instructional Quality Inventory: I. Introduction and overview (NPRDC Special Rep. 79-3). San Diego: Navy Personnel Research and Development Center, November 1978.

DISTRIBUTION LIST

Principal Deputy Assistant Secretary of the Navy (Manpower and Reserve Affairs)
Chief of Naval Operations (OP-102) (2), (OP-964D), (OP-987H)
Chief of Naval Personnel (Pers-10c), (Pers-2B)
Chief of Naval Research (Code 450) (4), (Code 458) (2)
Chief of Information (OI-2252)
Director of Navy Laboratories
Commandant of the Marine Corps (Code MPI-20)
Chief of Naval Education and Training (N-5), (00A)
Chief of Naval Technical Training (Code 016)
Chief of Naval Education and Training Support
Chief of Naval Education and Training Support (00A), (N-5)
Commander Training Command, U.S. Pacific Fleet
Commander Training Command, U.S. Atlantic Fleet (Code N3A)
Strategic System Project Office (SP-15)
Commanding Officer, Fleet Combat Training Center, Pacific
Commanding Officer, Fleet Combat Training Center, Pacific (Code 00E)
Commanding Officer, Fleet Training Center, San Diego
Commanding Officer, Fleet Anti-Submarine Warfare Training Center, Pacific
Commanding Officer, Naval Education and Training Program Development Center (2)
Commanding Officer, Naval Development and Training Center (Code 0120)
Commanding Officer, Naval Technical Training Center (Code 01E)
Commanding Officer, Naval Damage Control Training Center
Commanding Officer, Naval Education and Training Support Center, Pacific (Code N1B)
Commanding Officer, Naval Health Sciences Education and Training Command (Code 2) (2)
Commanding Officer, National Naval Dental Center (Library)
Commanding Officer, Naval Training Equipment Center (Technical Library)
Officer in Charge, Naval Instructional Program Development Detachment, Great Lakes
Officer in Charge, Central Test Site for Personnel and Training Evaluation Program
Officer in Charge, Naval Education and Training Information Systems Activity, Memphis Detachment
Director, Training Analysis and Evaluation Group (TAEG)
Master Chief Petty Officer of the Force, U.S. Atlantic Fleet
Master Chief Petty Officer of the Force, U.S. Pacific Fleet
Master Chief Petty Officer of the Force, Naval Material Command (NMAT 00C)
Master Chief Petty Officer of the Force, Naval Education and Training Command (Code 003)
Personnel Research Division, Air Force Human Resources Laboratory (AFSC), Brooks Air Force Base
Technical Library, Air Force Human Resources Laboratory (AFSC), Brooks Air Force Base
Flying Training Division, Air Force Human Resources Laboratory, Williams Air Force Base
CNET Liaison Office, Air Force Human Resources Laboratory, Williams Air Force Base
Technical Training Division, Air Force Human Resources Laboratory, Lowry Air Force Base
Program Manager, Life Sciences Directorate, Air Force Office of Scientific Research (AFSC)
Army Research Institute for the Behavioral and Social Sciences
Military Assistant for Training and Personnel Technology, Office of the Under Secretary of Defense for Research and Engineering

Director for Acquisition Planning, OASD(MRA&L)
Commandant, Industrial College of the Armed Forces
Director, Defense Activity for Non-Traditional Education Support
Secretary Treasurer, U.S. Naval Institute
Science and Technology Division, Library of Congress
Coast Guard Headquarters (G-P-1/62)

DISTRIBUTION LIST

Principal Deputy Assistant Secretary of the Navy (Manpower and Reserve Affairs)
Chief of Naval Operations (OP-102) (2), (OP-964D), (OP-987H)
Chief of Naval Personnel (Pers-10c), (Pers-2B)
Chief of Naval Research (Code 450) (4), (Code 458) (2)
Chief of Information (OI-2252)
Director of Navy Laboratories
Commandant of the Marine Corps (Code MPI-20)
Chief of Naval Education and Training (N-5), (00A)
Chief of Naval Technical Training (Code 016)
Chief of Naval Education and Training Support
Chief of Naval Education and Training Support (00A), (N-5)
Commander Training Command, U.S. Pacific Fleet
Commander Training Command, U.S. Atlantic Fleet (Code N3A)
Strategic System Project Office (SP-15)
Commanding Officer, Fleet Combat Training Center, Pacific
Commanding Officer, Fleet Combat Training Center, Pacific (Code 00E)
Commanding Officer, Fleet Training Center, San Diego
Commanding Officer, Fleet Anti-Submarine Warfare Training Center, Pacific
Commanding Officer, Naval Education and Training Program Development Center (2)
Commanding Officer, Naval Development and Training Center (Code 0120)
Commanding Officer, Naval Technical Training Center (Code 01E)
Commanding Officer, Naval Damage Control Training Center
Commanding Officer, Naval Education and Training Support Center, Pacific (Code N1B)
Commanding Officer, Naval Health Sciences Education and Training Command (Code 2) (2)
Commanding Officer, National Naval Dental Center (Library)
Commanding Officer, Naval Training Equipment Center (Technical Library)
Officer in Charge, Naval Instructional Program Development Detachment, Great Lakes
Officer in Charge, Central Test Site for Personnel and Training Evaluation Program
Officer in Charge, Naval Education and Training Information Systems Activity, Memphis Detachment
Director, Training Analysis and Evaluation Group (TAEG)
Master Chief Petty Officer of the Force, U.S. Atlantic Fleet
Master Chief Petty Officer of the Force, U.S. Pacific Fleet
Master Chief Petty Officer of the Force, Naval Material Command (NMAT 00C)
Master Chief Petty Officer of the Force, Naval Education and Training Command (Code 003)
Personnel Research Division, Air Force Human Resources Laboratory (AFSC), Brooks Air Force Base
Technical Library, Air Force Human Resources Laboratory (AFSC), Brooks Air Force Base
Flying Training Division, Air Force Human Resources Laboratory, Williams Air Force Base
CNET Liaison Office, Air Force Human Resources Laboratory, Williams Air Force Base
Technical Training Division, Air Force Human Resources Laboratory, Lowry Air Force Base
Program Manager, Life Sciences Directorate, Air Force Office of Scientific Research (AFSC)
Army Research Institute for the Behavioral and Social Sciences
Military Assistant for Training and Personnel Technology, Office of the Under Secretary of Defense for Research and Engineering

Director for Acquisition Planning, OASD(MRA&L)
Commandant, Industrial College of the Armed Forces
Director, Defense Activity for Non-Traditional Education Support
Secretary Treasurer, U.S. Naval Institute
Science and Technology Division, Library of Congress
Coast Guard Headquarters (G-P-1/62)